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10/559,607	12/05/2005	Kamen Kanev	022.0001	1526

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Judge Patent Associates
Dojima Building, 5th Floor
6-8 Nishitemma 2-Chome, Kita-ku
Osaka-Shi, 530-0047
JAPAN

EXAMINER	
AZARIAN, SEYED H	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/559,607	KANEV ET AL.	
	Examiner	Art Unit	
	Seyed Azarian	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14-19* is/are allowed.

6)☒ Claim(s) *1-6,8 and 11* is/are rejected.

7)☒ Claim(s) *7,9,10,12 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/5/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1, 11 and 14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows;

Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 1 state "a digital information carrier characterized by: comprising a plurality of image objects". Such a claim states "information carrier ..." is not a "process, machine, manufacture, or composition of matter." Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a "information carrier or signal" cannot be patentable subject matter."

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6 and 8, are rejected under 35 U.S.C. 102(b) as being anticipated by Zhou et al (U.S. patent 6,418,244).

Regarding claim 1, Zhou discloses a digital information carrier characterized by: comprising a plurality of image objects as constituent elements; containing cluster information carrier(s) constituted by at least two of the image objects (see abstract, the encoded digital information is mapped into the two-dimensional barcode in such a way as to minimize the errors caused by damage to particular rows and/or columns, for example, row damage caused by faxing the printed barcode. To extract the encoded digital information from the printed medium, the printed medium is scanned, then the bitmap is located within the printed medium);

and said cluster information carriers having bit data correlated to relative relationship(s) between said at least two image objects forming the constituent elements (column 3, lines 57-64, in one embodiment of this invention, a two-dimensional data barcode has encoded digital information in a bitmap formatted representation of randomized data bits having a selected pixel row and column length, with "black" data pixels in each corner and no border surrounding the barcode. In another embodiment of this invention, there is no requirement that "black" data pixels occupy each corner of the barcode, also (column 6, lines 43-58, FIG. 2 illustrates encoded set of data bits in a two-dimensional grid. Typically, each data bit which is encoded is printed as a matrix of black or white pixels 23. Preferably, a pixel matrix representing one data bit is square and may be as small as a 1.times.1 matrix to as large as a 6.times.6 matrix or more. Non-square matrices may also be used. There are no clocks or borders needed or required in the symbology for PanaMark 20. In the preferred embodiment, the PanaMark 20 is a 20.times.20 array of data bits, although it can be recognized that the

size is flexible and that the only requirement on the size is that the reading process know the size of the encoded array. In some applications, it may be desirable to include a text label 22 adjacent to the PanaMark 20, although optional and of no significance to either the encoding or decoding process).

Regarding claim 2, Zhou discloses a digital information carrier as set forth in claim 1, wherein among the relative relationship(s) between the image objects in the plurality constituting said cluster information carrier(s), a relative relationship to which the bit data does not correlate is arbitrarily configurable (see claim 1, also column 15, lines 12-25, in FIG. 17, to implement the trigonometric deskewing step 74 described in FIG. 8, the relationship between a two-dimensional image 171 and its skewed (or rotated) counterpart 170 can be described as an affined transformation of coordinates by the well-known equations).

Regarding claim 3, Zhou discloses a digital information carrier as set forth in claim 1, wherein at least one of the image objects forming the constituent elements of one of said cluster information carrier(s) forms a constituent element of another of said cluster information carrier (see abstract, two-dimensional barcodes, each having encoded digital information in a bitmap representing preferably randomized encoded data bits, are printed onto a printed medium. Preferably, error correction codes are added to the digital information to ensure that the decoding process accurately reproduce the digital information. In one embodiment, the bitmap may further include "anchor" bits in each corner, which are used as part of the skew estimation and deskewing processes during decoding. In a second embodiment, no "anchor" bits are

required. The encoded digital information is mapped into the two-dimensional barcode in such a way as to minimize the errors caused by damage to particular rows and/or columns, for example, row damage caused by faxing the printed barcode. To extract the encoded digital information from the printed medium, the printed medium is scanned, then the bitmap is located within the printed medium. The skew of the bitmap, if any, is determined, and the bitmap is deskewed if necessary. The bitmap is then cropped, and the randomized digital information is read from the bitmap. The digital information is derandomized and any error correction codes are removed, in the process correcting and/or recording any errors discovered, thereby reproducing the original encoded digital information).

Regarding claim 5, Zhou discloses a digital information carrier as set forth in claim 4, wherein the cluster information carrier for which said determination is being made has bit data correlated to a relative relationship between the plurality of image objects that are constituent elements (column 3, lines 57-64, in one embodiment of this invention, a two-dimensional data barcode has encoded digital information in a bitmap formatted representation of randomized data bits having a selected pixel row and column length, with "black" data pixels in each corner and no border surrounding the barcode. In another embodiment of this invention, there is no requirement that "black" data pixels occupy each corner of the barcode, also (column 6, lines 43-58, FIG. 2 illustrates encoded set of data bits in a two-dimensional grid. Typically, each data bit which is encoded is printed as a matrix of black or white pixels 23. Preferably, a pixel matrix representing one data bit is square and may be as small as a 1.times.1 matrix to

as large as a 6.times.6 matrix or more. Non-square matrices may also be used. There are no clocks or borders needed or required in the symbology for PanaMark 20. In the preferred embodiment, the PanaMark 20 is a 20.times.20 array of data bits, although it can be recognized that the size is flexible and that the only requirement on the size is that the reading process know the size of the encoded array. In some applications, it may be desirable to include a text label 22 adjacent to the PanaMark 20, although optional and of no significance to either the encoding or decoding process).

Regarding claim 6, Zhou discloses a digital information carrier as set forth in any of claims 1-5, wherein predetermined information is assigned to a relative arrangement of said cluster information carriers (column 8, line 66 through column 9, line 27, FIG. 8A, the scanned PanaMark is randomized and therefore has an approximately equal distribution of black and white pixels, it will have a greater number of black pixels than is normally present within the region of the document in which it is positioned. Each histogram is sequentially examined, row by row for the vertical histogram and column by column for the horizontal histogram, until a first predetermined level is reached. Next, the process "backs up slightly" until a second lower predetermined level is reached. This is selected as the first boundary. Then, moving forward from where the first predetermined level was first found, the histogram is examined to find the point where it drops below the first predetermined level. The process next "moves forward slightly" until the second predetermined level is reached, similar to the "backing up" process described above. This point is selected as the second boundary of the mark. By performing this process on both the horizontal and vertical histograms, a box bounding

the PanaMark is selected. The "backing up slightly" and "moving forward slightly" steps ensure that the corners are not cut off, especially in the case of a skewed PanaMark).

With regard to claims 4 and 8 the arguments analogous to those presented above for claims 1, 3, 6, are respectively applicable to claims 4 and 8.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou et al (U.S. patent 6,418,244) in view of Kuwana (U.S. patent 5,138,197).

However regarding claim 11, Zhou does not explicitly state its corresponding "configuration of a logical block formed by unifying a plurality of unit information carriers being the minimum units for decoding bit data". On the other hand Kuwana in the same field of decoder teaches (column 2, lines 58-68, the address decoder configured, the first logic block composed of first-channel-type MISFETs and the second logical block composed of second-channel-type MISFETs, in which first and second logical block are arranged side by side, and input wires are formed to supply address signals to the gates of MISFETs forming the first and second logical block. The input wires cross the first and second logical block. The address decoder further comprises output wires

extending from the first and second logical block and connected to one another outside these blocks).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Zhou invention according to the teaching of Kuwana because combination of Zhou encoding information and Kuwana address decoder logical block, provides improved document identification system and error correcting code, which can easily be implemented in an scanning device.

Allowable Subject Matter

6. Claims 7, 9, 10, 12 and 13 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

REASONS FOR ALLOWABLE CLAIMS

7. The following is an examiner's statement of reasons for allowable claims. Claims 14-19 are allowable.

With respect to claim 14, the closest prior art of record (Zhou and Kuwana), Zhou reference is directed to two-dimensional barcodes, and, more particularly, to a robust clock free two-dimensional barcode symbology, encoding information formatted in such barcode symbology, printing the barcode symbology onto a printed medium, and decoding the same, and Kuwana reference is directed to an NAND-circuit-type address decoder apparatus for decoding address signals, more particularly to an address decoder apparatus composed of CMOS using P- and N-channel MISFETs, but neither Zhou nor Kuwana teach or suggest, among other things, "containing a bit matrix V

formed by arranging, in matrix form, array elements bm (m=0 to n-1) of a reference-bit array B having a predetermined array length n, wherein bit data is correlated to the bit matrix V; that two matrix elements v(i, j) and v(i+1, j) neighboring one (i-axis) of the two array axes of the bit matrix V satisfy v(i, j)=bm, v(i+1, j)=bm+1; and that two matrix elements v(i, j) and v(i, j+1) neighboring the other array axis (j-axis) of the bit matrix V satisfy, letting the amount by which the array elements bm are offset toward the j-axis be a, v(i, j)=bm, v(i, j+1)=bm+a, wherein the amount of offset a toward the j-axis is an integer equal to or greater than.

These key features in combination with the other features of the claimed invention are neither taught nor suggested by (Zhou and Kuwana) prior art of record.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehta Bhavesh, can be reached at (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.
Status information about the PAIR system, see http:// pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Seyed Azarian/
Primary Examiner, Art Unit 2624
Group Art Unit 2624
December 28, 2008